Commonwealth of Kentucky
Environmental and Public Protection Cabinet
Department for Environmental Protection
Division for Air Quality
803 Schenkel Lane
Frankfort, Kentucky 40601
(502) 573-3382

AIR QUALITY PERMIT
Issued under 401 KAR 52:040

Permittee Name:	**Dyno Nobel, Inc.**
Mailing Address:	**11th floor, Crossroads Tower, Salt Lake City, UT 84144**
Source Name:	**Dyno Nobel, Inc.**
Mailing Address:	**State Route 175, P.O. Box 130, Graham, KY 42344**
Source Location:	**State Route 175, Graham, KY 42344**
Source ID #:	**21-177- 00067**
Agency Interest #:	**3241**
Regional Office:	**Owensboro Regional Office** **3032 Alvey Park Drive West, Suite 700** **Owensboro, KY 42303-2191** **(270)-687-7304**
County:	**Muhlenberg**
Permit Number:	**S-05-151**
Activity ID #:	**APE20050002**
Log Number:	**55637**
Review Type:	**Minor Source Operation**
Application Complete Date:	**April 8, 2003**
Issuance Date:	**November 29 2005**
Expiration Date:	**November 29, 2015**

E-Signed by Diana Andrews
VERIFY authenticity with ApproveIt

John S. Lyons, Director
Division for Air Quality

Revised 10/19/05

SECTION A - PERMIT AUTHORIZATION

Pursuant to a duly submitted application the Kentucky Division for Air Quality hereby authorizes the construction and operation of the equipment described herein in accordance with the terms and conditions of this permit. This permit has been issued under the provisions of Kentucky Revised Statutes Chapter 224 and regulations promulgated pursuant thereto.

The permittee shall not construct, reconstruct, or modify any affected facilities without first submitting a complete application and receiving a permit for the planned activity from the permitting authority, except as provided in this permit or in 401 KAR 52:040, State-origin permits.

Issuance of this permit does not relieve the permittee from the responsibility of obtaining other permits, licenses, or approvals that may be required by the Cabinet or other federal, state, or local agencies.

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS

GROUP REQUIREMENTS

LIST of EMISSION POINTS

05 (PETN-2, PETN-4) – Crude PETN Manufacture
Description:
Crude pentaerythritol tetranitrate (PETN) is manufactured at this emission point. The affected facilities that manufacture crude PETN are: Feed Hooper (H101C), Nitrator (R102C), Cooler (R103C), Spent Acid Filter (F111C), Spent Acid Vacuum Tank, Slurry Vessel (R112C), Final Filter, Acid Water Vacuum Tank, Two (2) Vacuum Pumps, and Nitric Acid Day Tank (T106).
Construction commenced: April, 1991

06 (PETN-1, PETN-3) – Cap Grade PETN Manufacture/Nitration
Description:
Cap Grade PETN is manufactured at this emission point. The affected facilities that manufacture cap grade PETN are: Feed Hooper (H101), Nitrator (R102), Cooler (R103), Spent Acid Filter (F111), Spent Acid Vacuum Tank, Slurry Vessel (R112), and Two (2) Vacuum Pumps.
Construction commenced: January, 1981

07 (PETN-6) – Cap Grade PETN Manufacture/Crystallization
Description:
Cap Grade PETN is manufactured at this emission point. The affected facilities that manufacture cap grade PETN are: Acetone day tank (T208), Transport Filter (F202), Through Drain tank (DV157A), Separator Pot, Vacuum tank (VT212), Dissolver (R203), Three (3) Crystallizers (R204, R205, R206), Final Filter (F207), Spent Acetone Vacuum Tank (VT217), Superfine Dissolver (SFD-1), Superfine Nutsche Filter (SFN-1), and Packout Nutsche Filter.
Construction commenced: May, 1988

08 (ABS-1) – Nitric Acid Recovery Process
Description:
Nitric acid is recovered at this emission point. The affected facilities that recover nitric acid are: Two (2) overhead feed tanks (T301/B1, T302/B2), Evaporator (E302/B3), Extraction Column (C306/K1), Bleaching Column (C308/K2), Separation Tank (T350/B4), Density Tank (T349/B5), Three (3) Condensers (X307/W2, X309/W4, X311.2/W6.2), and three (3) heaters (X303/W1, X328.1/W3.1, X328.2/W3.2)
Construction commenced: January, 1981

09 (SAC-1) – Sulfuric Acid Recovery Process
Description:
Sulfuric acid is recovered at this emission point. The affected facilities that recover sulfuric acid are: Heater (X329/W7), Evaporator Pot (E302/B7), Immersion Pot (T331/B8), Two (2) condensers, Vacuum Pot (T337/B9), Separation Tank (T348)
Construction commenced: January, 1981

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS

10 (APV-1) – Acetone Recovery Process
Description:
Acetone is recovered at this emission point. The affected facilities that recover acetone are: Spent Acetone Day Tank (T503), Overhead Condenser (X507), Feed Preheater (X504), Three (3) Heaters (X505A, X505B, X530), Distillation Column (C506), AC99 Reflux Tank (T508), and Condensate Tank (T517)
Construction commenced: January, 1981

11 (--) – Tank Farm/Four Nitric Acid Tanks:
Description:
Nitric Acid is stored at this emission point. The affected facilities that store nitric acid are:
Tank TF340/B18 (8,500 gal. Capacity)
Tank TF342/B14 (8,500 gal. Capacity)
Tank TF344/B15 (8,500 gal. Capacity)
Tank TF346/B19 (8,500 gal. Capacity)
Construction commenced: January, 1981

12 (--) – Tank Farm/Three Sulfuric Acid Tanks:
Description:
Sulfuric Acid is stored at this emission point. The affected facilities that store sulfuric acid are:
Tank TF340/B (2,500 gal. Capacity)
Tank TF333/B10 (2,500 gal. Capacity)
Tank TF338/B17 (8,500 gal. Capacity)

Tank Farm/Sulfuric Acid Pipeline equipment: Sixty six (66) flanges, twenty one (21) valves and six (6) pumps
Construction commenced: January, 1981

13 (--) – Tank Farm/Four Acetone Tanks:
Description:
Acetone is stored at this emission point. The affected facilities that store acetone are:
Tank TF501/B18 (9,000 gal. Capacity)
Tank TF510/B14 (9,000 gal. Capacity)
Tank TF520/B15 (9,000 gal. Capacity)
Tank TF531-A/B19 (1,500 gal. Capacity)
Construction commenced: January, 1981

14 (--) – Tank Farm/Potassium Hydroxide Tank:
Description:
Potassium Hydroxide is stored at this emission point. One (1) 8,500 gal. capacity Potassium hydroxide tank.
Tank Farm/Potassium Hydroxide Pipeline equipment: Three (3) flanges, three (3) valves and one (1) pump.
Construction commenced: September, 1994

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS

APPLICABLE REGULATIONS: 401 KAR 63:021, Existing sources emitting toxic air pollutants

1. Operating Limitations: None

2. Emission Limitations:

a) Total nitric acid emissions from the listed Emission Points shall not exceed 10.94 pounds per hour.
b) Total sulfuric acid emissions from the listed Emission Points shall not exceed 1.624 pounds per hour.
c) Total potassium hydroxide emissions from the listed Emission Points shall not exceed 0.447 pounds per hour.
d) Total ammonia emissions from the listed Emission Points shall not exceed 1.624 pounds per hour.

Compliance Demonstration Method:

a) Nitric acid = $M \times EF_n / H$
emissions (in lbs/hour)

M= Monthly processing rate of PETN at these Emission Points (lbs of PETN used / month)
EF_n= Nitric acid emission factor (lbs nitric acid /lb PETN used)
H= hours of operation (hours/ month)

b) Sulfuric acid = $M \times EF_s / H$
emissions (in lbs/hour)

M= Monthly processing rate of PETN at these Emission Points (lbs of PETN used / month)
EF_s= Sulfuric acid emission factor (lbs sulfuric acid /lb PETN used)
H= hours of operation (hours/ month)

c) Potassium hydroxide = $M \times EF_p / H$
emissions (in lbs/hour)

M= Monthly processing rate of PETN at these Emission Points (lbs of PETN used / month)
EF_p= potassium hydroxide emission factor (lbs potassium hydroxide /lb PETN used)
H= hours of operation (hours/ month)

d) Ammonia = $M \times EF_a / H$
emissions (in lbs/hour)

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS

M= Monthly processing rate of PETN at these Emission Points (lbs of PETN used / month)
EF_a= Ammonia emission factor (in lbs ammonia /lb PETN used)
H= hours of operation (hours/ month)

3. Testing Requirements:

None

4. Specific Monitoring Requirements:

a) The monthly PETN processing rates and monthly hours of operation shall be monitored and shall be used to calculate nitric acid, sulfuric acid, Potassium hydroxide and ammonia hourly emission rate to ensure that the permitted levels are not exceeded.
b) The permittee shall perform a visual inspection of the subject process equipment in operation once per week to insure the equipment appears to be operating properly and that the integrity of the equipment exhaust system is not compromised by damage, malfunction or deterioration. Immediate repairs shall be made to correct obvious failures or deficiencies.

5. Specific Record Keeping Requirements:

The permittee shall record the following information to demonstrate compliance with the requirements of **Emission Limitations**. Such records shall provide sufficient data and calculations to clearly demonstrate that the applicable requirements are met, and shall include but not be limited to the following:

a) Monthly raw material usage and final material production at the subject emission points;
b) Dates and duration of each production operation and monthly hours of operation;
c) The total weight of nitric acid, sulfuric acid, Potassium hydroxide, and ammonia emitted from the listed emission points and the calculation results determined on a monthly basis;
d) Records of all emission unit inspections, emission test reports, and any maintenance, inspection, calibration and/or replacement of such equipment.

6. Specific Reporting Requirements:

The permittee shall submit reports to the Division for Air Quality's Owensboro Regional Office containing the calculated monthly emissions of toxic air pollutants (nitric acid, sulfuric acid, Potassium hydroxide and ammonia), including the details of these calculations, within 30 days of the end of the each reporting period in accordance with Section C (c)(3). All pollutant emissions regulated in this permit that are in excess of the emission limits specified **Emission Limitations** shall be reported to the Division as specified in Section C (c) (1) of this permit.

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS

15 (--) – Cleaver Brooks Indirect Heat Exchanger, Model CB:

Description: One (1) natural gas fired indirect heat exchanger with a maximum rated capacity of 8.37 MMBtu/hr, with no.2 fuel oil as backup.
Construction commenced: January, 1981

APPLICABLE REGULATIONS:
401 KAR 59:010, New indirect heat exchangers

1. Operating Limitations:
None

2. Emission Limitations:

a) Pursuant to Regulation 401 KAR 59:015:
   i. Particulate matter emission shall not exceed 0.56 pounds per MMBtu of actual heat input.
   ii. Visible emissions shall not equal or exceed 20 percent opacity, as determined with Reference Method 9, Appendix A, 40 CFR 60.
   iii. Sulfur dioxide emissions shall not exceed three (3) pounds per MMBtu of actual heat input.

Compliance Demonstration Method:

a) To provide reasonable assurance that the visible emission limitations are being met the permittee shall:
   i. perform from each stack or vent opacity readings using Reference Method 9 determine every six months or more frequently if requested by the Division. Opacity readings shall be conducted while the emission units are operating.
   ii. perform a qualitative visual observation of the opacity of emissions from each stack/vent on a weekly basis when burning fuel oil and monthly basis when burning natural gas and maintain a log of the observation. The log shall note:
      A) whether any air emissions (except for water vapor) were visible from the vent/stack, and
      B) all emission points from which visible emissions occurred.

   iii. determine the opacity of emissions by Reference Method 9 if visible emissions are observed from any stack/vent.

b) To provide reasonable assurance that the particulate matter and sulfur dioxide emission limitations are being met, the permittee shall monitor the fuel type (i.e. natural gas or No. 2 fuel) and hours of operation.

The maximum particulate and sulfur dioxide emissions shall be calculated as follows:

Emissions (E) = [(Total Monthly gas or fuel oil consumption rate x Emission factor listed in Kentucky Emissions Inventory) / (Total Hours of operation per month

SECTION B - EMISSION POINTS, EMISSIONS UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS

x Total Hourly Rated Capacity)]

Where E = particulate emissions (or) sulfur dioxide emission in average lbs/hr

The particulate and sulfur dioxide emission factors shall be the number determined from the compliance test in testing requirements below or other emission test or AP-42 emission factors or other factors approved by the Division and specified in the Statement of Basis.

3. Testing Requirements:

None

4. Specific Monitoring Requirements:

The permittee shall monitor and maintain records of the following information:

a) The total monthly fuel usage rate (cubic feet/month or gallons per month) for each of the fuel listed herein.
b) The total monthly hours of operation (hours operated per month) of the boilers.
c) The sulfur content of fuel oil burned. The sulfur content maybe determined by fuel sampling and analysis or by fuel supplier certification.
d) The permittee shall monitor all the parameters listed above in Emission limitations to show compliance with the applicable standards.

5. Specific Record Keeping Requirements:

Records shall be maintained of the visual observations, the calendar semi-annual Reference Method 9 observations, the monthly amounts and type of fuel combusted at the emissions unit and the hours of emission unit operation, and the sulfur content (weight percent) and heating value of any no 2 fuel oil combusted.

6. Specific Reporting Requirements:

None

SECTION C - GENERAL CONDITIONS

A. Administrative Requirements

1. The permittee shall comply with all conditions of this permit. Noncompliance shall be a violation of 401 KAR 52:040, Section 3(1)(b) and is grounds for enforcement action including but not limited to the termination, revocation and reissuance, or revision of this permit.

2. This permit shall remain in effect for a fixed term of ten (10) years following the original date of issue. Permit expiration shall terminate the source's right to operate unless a timely and complete renewal application has been submitted to the Division at least six months prior to the expiration date of the permit. Upon a timely and complete submittal, the authorization to operate within the terms and conditions of this permit, including any permit shield, shall remain in effect beyond the expiration date, until the renewal permit is issued or denied by the Division. [401 KAR 52:040, Section 15]

3. Any condition or portion of this permit which becomes suspended or is ruled invalid as a result of any legal or other action shall not invalidate any other portion or condition of this permit [Material incorporated by reference by 401 KAR 52:040, Section 1a, 11].

4. Pursuant to materials incorporated by reference by 401 KAR 52:040, this permit may be revised, revoked, reopened, reissued, or terminated for cause. The filing of a request by the permittee for any permit revision, revocation, reissuance, or termination, or of a notification of a planned change or anticipated noncompliance shall not stay any permit condition [Material incorporated by reference by 401 KAR 52:040, Section 1a, 4,5].

5. This permit does not convey property rights or exclusive privileges [Material incorporated by reference by 401 KAR 52:040, Section 1a, 8].

6. Nothing in this permit shall alter or affect the liability of the permittee for any violation of applicable requirements prior to or at the time of permit issuance [401 KAR 52:040 Section 11(3)].

7. All previously issued permits to this source at this location are hereby null and void.

B. Recordkeeping Requirements

1. Records of all required monitoring data and support information, including calibrations, maintenance records, and original strip chart recordings, and copies of all reports required by the Division for Air Quality, shall be retained by the permittee for a period of at least five years and shall be made available for inspection upon request by any duly authorized representative of the Division for Air Quality [401 KAR 52:040 Section 3(1)(f)].

2. The permittee shall perform compliance certification and recordkeeping sufficient to assure compliance with the terms and conditions of the permit. Documents, including reports, shall be certified by a responsible official pursuant to 401 KAR 52:040, Section 21.

SECTION C – GENERAL CONDITIONS

C. Reporting Requirements

1. a. In accordance with the provisions of 401 KAR 50:055, Section 1, the permittee shall notify the Regional Office listed on the front of this permit concerning startups, shutdowns, or malfunctions as follows:
   i. When emissions during any planned shutdowns and ensuing startups will exceed the standards, notification shall be made no later than three (3) days before the planned shutdown, or immediately following the decision to shut down, if the shutdown is due to events which could not have been foreseen three (3) days before the shutdown.
   ii. When emissions due to malfunctions, unplanned shutdowns and ensuing startups are or may be in excess of the standards, notification shall be made as promptly as possible by telephone (or other electronic media) and shall be submitted in writing upon request.

   b. The permittee shall promptly report deviations from permit requirements including those attributed to upset conditions (other than emission exceedances covered by Reporting Requirement condition 1. a. above), the probable cause of the deviation, and corrective or preventive measures taken; to the Regional Office listed on the front of this permit within 30 days. Other deviations from permit requirements shall be included in the semiannual report [Material incorporated by reference by 401 KAR 52:040, Section 5, 3].

2. The permittee shall furnish information requested by the Cabinet to determine if cause exists for modifying, revoking and reissuing, or terminating the permit; or to determine compliance with the permit [Material incorporated by reference by 401 KAR 52:040, Section 1a, 6].

3. Summary reports of monitoring required by this permit shall be submitted to the Regional Office listed on the front of this permit at least every six (6) months during the life of this permit. For emission units that were still under construction or which had not commenced operation at the end of the 6-month period covered by the report and are subject to monitoring requirements in this permit, the report shall indicate that no monitoring was performed during the previous six months because the emission unit was not in operation.

   The summary reports are due January 30th and July 30th of each year. All deviations from permit requirements shall be clearly identified in the reports. All reports shall be certified by a responsible official pursuant to 401 KAR 52:040, Section 21.

D. Inspections

1. In accordance with the requirements of 401 KAR 52:040, Section 3(1)(f) the permittee shall allow authorized representatives of the Cabinet to perform the following during reasonable times. Reasonable times are defined as during all hours of operation, during normal office hours; or during an emergency:

   a. Enter upon the premises to inspect any facility, equipment (including air pollution control equipment), practice, or operation.

SECTION C – GENERAL CONDITIONS

b. To access and copy any records required by the permit.

c. Inspect, at reasonable times, any facilities, equipment (including monitoring and pollution control equipment), practices, or operations required by the permit.

d. Sample or monitor, at reasonable times, substances or parameters to assure compliance with the permit or any applicable requirements.

E. Emergencies/Enforcement Provisions

1. The permittee shall not use as defense in an enforcement action, the contention that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance [Material incorporated by reference by 401 KAR 52:040, Section 1a, 3].

2. An emergency shall constitute an affirmative defense to an action brought for the noncompliance with the technology-based emission limitations if the permittee demonstrates through properly signed contemporaneous operating logs or relevant evidence that:
   a. An emergency occurred and the permittee can identify the cause of the emergency;
   b. The permitted facility was at the time being properly operated;
   c. During an emergency, the permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards or other requirements in the permit; and
   d. The permittee notified the Division as promptly as possible and submitted written notice of the emergency to the Division within two working days after the time when emission limitations were exceeded due to the emergency and included a description of the emergency, steps taken to mitigate emissions, and corrective actions taken.

3. Emergency provisions listed in General Condition E.2 are in addition to any emergency or upset provision contained in an applicable requirement [401 KAR 52:040, Section 22(1)].

4. In an enforcement proceeding, the permittee seeking to establish the occurrence of an emergency shall have the burden of proof. [401 KAR 52:040, Section 22(2)].

F. Compliance

1. Periodic testing or instrumental or non-instrumental monitoring, which may consist of record keeping, shall be performed to the extent necessary to yield reliable data for purposes of demonstration of continuing compliance with the conditions of this permit. For the purpose of demonstration of continuing compliance, the following guidelines shall be followed:
   a. Pursuant to 401 KAR 50:055, General compliance requirements, Section 2(5), all air pollution control equipment and all pollution control measures proposed by the application in response to which this permit is issued shall be in place, properly maintained, and in operation at any time an affected facility for which the equipment and measures are designed is operated, except as provided by 401 KAR 50:055, Section 1.

SECTION C – GENERAL CONDITIONS

b. A log of the monthly raw material consumption and monthly production rates shall be kept available at the facility. Compliance with the emission limits may be demonstrated by computer program, spread sheets, calculations or performance tests as may be specified by the Division [401 KAR 50:055, Section 2].

2. Pursuant to 401 KAR 52:040, Section 19, the permittee shall certify compliance with the terms and conditions contained in this permit by January 30th of each year, by completing and returning a Compliance Certification Form (DEP 7007CC) (or an approved alternative) to the Regional Office listed on the front of this permit in accordance with the following requirements:
   a. Identification of the term or condition;
   b. Compliance status of each term or condition of the permit;
   c. Whether compliance was continuous or intermittent;
   d. The method used for determining the compliance status for the source, currently and over the reporting period, and
   e. For an emissions unit that was still under construction or which has not commenced operation at the end of the 12-month period covered by the annual compliance certification, the permittee shall indicate that the unit is under construction and that compliance with any applicable requirements will be demonstrated within the timeframes specified in the permit.
   f. The certification shall be postmarked by January 30th of each year. Annual compliance certifications should be mailed to the following addresses:

Division for Air Quality Owensboro Regional Office 3032 Alvey Park Drive W., Ste. 700 Owensboro, KY 42303	Division for Air Quality Central Files 803 Schenkel Lane Frankfort, KY 40601-1403

3. Permit Shield - A permit shield shall not protect the owner or operator from enforcement actions for violating an applicable requirement prior to or at the time of permit issuance. Compliance with the conditions of this permit shall be considered compliance with all:
   (a) Applicable requirements that are included and specifically identified in this permit; or
   (b) Non-applicable requirements expressly identified in this permit [401 KAR 52:040, Section 11].

SECTION D – INSIGNIFICANT ACTIVITIES

The following listed activities have been determined to be insignificant activities for this source pursuant to 401 KAR 52:040, Section 6. While these activities are designated as insignificant the permittee shall comply with the applicable regulation and any level of periodic monitoring specified below.

	Description	Generally Applicable Regulation
1.	Three (3) Cord Printers identified as Print-1, Print-2, and Print -3.	401 KAR 63:020
2.	Cord plant vehicle fuel storage tank, identified as CFT-1, with a capacity of 2,000 gallons and storing diesel fuel oil.	None